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ORCHIDS

Reichenbachia: Orchids Illustrated and Described. By F. Sander, assisted by Eminent Scientific Authorities. Magnificently Illustrated in Colours. (London: Sotheran and Co., 1886.)

THE first two parts of a new illustrated work on orchids are now before us. It is called "Reichenbachia," in honour of Prof. Reichenbach, of Hamburg, our greatest living authority on the Orchideæ. The author of the work, which is to be published in monthly parts in an "ordinary," and an "imperial" edition limited to one hundred copies, is Mr. F. Sander, a well-known importer of, and dealer in, orchids at St. Alban's. While justice should be done to the author's energy and enterprise in undertaking so sumptuous and, so far as it has gone, so promising a production, it should be remembered that his business interests are connected with it.

Each part of the larger edition contains four plates in imperial folio, with botanical and horticultural descriptions in English, French, and German, geographical and cultural details being also given. The botanical descriptions are by Prof. Reichenbach, who is responsible also for the dissections. Why, we may ask, are the descriptions of the dissections sometimes in English and sometimes in Latin? This query leads to the remark that the custom of giving botanical descriptions in Latin has led to the creation of what we venture to designate as a most extraordinary, barbarous, and unintelligible jargon. In this work, as in any other botanical book where the descriptions are in Latin, words are to be found in numbers which are in no sense Latin. Scientific descriptions may require the invention of words or terms; but the supposed convenience of their being understood, when in Latin, by men of science of all nations is hardly a sufficient justification for the wholesale creation of such a language. We may add that we submitted one of the Latin descriptions in this work to the head master of a great school, who was unable even to suggest a meaning for some of the terms.

The plates in "Reichenbachia" are unquestionably superior, taking them one with another, to those in any modern botanical work we are acquainted with. They are far in advance both in drawing, and in truth and delicacy of colouring, to the "Orchid Album" of Messrs. B. S. Williams and Sons, or the "Lindenia" of the Continental Horticultural Company of Ghent. They do great credit to Mr. H. G. Moore, one of the best of our young horticultural artists, and to Mr. J. L. Macfarlane, whose work as a natural history lithographer it would be difficult to surpass. We are disposed to take exception to a remark made by Prof. Reichenbach, under Tab. I., *Odontoglossum crispum*, that Bateman's "Monograph of *Odontoglossum*" is "perhaps the finest book on orchids that has ever been issued." In our judgment it will not compare with the earlier work by the same author, the splendid "Orchidaceæ of Mexico and Guatemala." Of the eight plates in the two parts under review we consider Tab. IV., "*Odontoglossum Rossii rubescens*," the truest to nature, as well as the most

artistic. The least satisfactory is Tab. VI., *Calogyne cristata maxima*," in which the hairs on the tip, though shown in the dissection, are not even suggested. We must here, with all respect and deference to Prof. Reichenbach, demur to the varietal name *maxima*. The flowers of this variety may be a little larger than the type, but if it be named *maxima*, what are we to call a larger variety, should one turn up, as is by no means unlikely? These superlatives are more in keeping with the aims and objects of trade than with those of scientific nomenclature. The nurseryman naturally revels in such adjectives as "superbissima," "brilliantissima" (!), "delicatissima," "magnifica," &c., but science should repudiate them. Tab. III. represents a recently introduced Venus's Slipper, from the Malayan Archipelago, called *C. Sanderianum*, which has not been seen in flower, we believe, outside Mr. Sander's nursery. We hope the remarkable drawing does not do more than justice to it. The plant is especially interesting in that it is an almost exact Eastern counterpart of the now well-known *Cypripedium caudatum* from South America, which was first flowered by the late Mrs. Lawrence, of Ealing Park, about fifty years ago. Tab. I. represents the most beautiful and popular, and what is now the commonest and cheapest of the Andean cool orchids, *Odontoglossum crispum*. We cannot admit that there is any scientific distinction maintainable between *O. crispum*, *O. Bluntii*, and *O. Alexandra*, such differences as there are being purely horticultural. In view of the latest achievement of the busy laboratory of Messrs. Veitch and Sons, where during recent years more species of one genus, *Cypripedium*, have been created than have been gathered for us from nature by the whole army of collectors, botanists will have to reconsider, it would seem, not only the species of orchids, but the genera. Messrs. Veitch have now in flower a hybrid between *Sophronius grandiflora* and *Cattleya intermedia*! At the Conference last year, and again at the recent Provincial Show of the Royal Horticultural Society at Liverpool, the attention of botanists and horticulturists was drawn to the confusion into which the nomenclature of orchids had fallen, a confusion rapidly becoming worse confounded. We have examples of this in *Odontoglossum crispum* with its many synonyms and varieties, and in *Cattleya Dowiana*, Tab. V., which was re-christened *C. aurea*, simply because it was found in a new habitat. A new name should never be accepted, any more than a new genus or species, unless it be stamped with the approval of a recognised botanical authority. At present the latest and rawest recruit among the rapidly increasing band of orchid growers thinks nothing of coining a new specific or varietal name, which generally takes the shape of a supposed Latinisation of his own name.

The cultural directions are generally judicious. It is impossible to lay too much stress upon the necessity of giving orchids, whether Mexican or East Indian, the period of rest they have in nature. Mr. Sander proscribes houses with a north aspect for cool orchids. Some of the finest *Odontoglossa* and cool *Oncidia* we ever saw were grown in a house facing due north. We cannot indorse the recommendation of cocoa-nut fibre refuse or peat-moss manure either on or under stages. They rapidly decay, and become covered with fungi, and full of wood-lice and

other pests. One of the great difficulties in growing orchids and other plants under artificial conditions is due to the injury caused by insects. Any one with a knowledge of chemistry and of vegetable physiology would find, we believe, a profitable field of inquiry in this direction. Amateurs and the trade alike have dealt with this difficulty by rule of thumb for generations, and confined themselves to smoking plants with tobacco in various shapes, and treating them with quack insecticides. So far as tobacco-smoke is effectual, its effect is probably due to the nicotine it contains. There can be no insuperable difficulty in charging the air of a closed house with nicotine fumes sufficiently to destroy insects, and in thereby getting rid of the pungent and injurious smoke produced by burning coarse tobacco and brown paper. In conclusion we may express a hope that this work will not come to a premature end, like some of its predecessors, but live to fulfil the promise of the parts here noticed.

ARC AND GLOW LAMPS

Arc and Glow Lamps. A Practical Hand-Book on Electric Lighting. By Julius Maier, Ph.D. (London: Whittaker and Co., and G. Bell and Sons, 1886.)

WE should have been glad if it had been possible to speak more favourably of Dr. Maier's work than can be done after a conscientious reading of it; for Dr. Maier has made himself so thoroughly master of our language, and has taken such obvious pains to acquaint himself with the literature of electric lighting, that we cannot help wondering how so able a man has produced such a disappointing treatise. Much of the work appears to have been translated from Merling's and other German books on electric lighting. Perhaps it is to this composite origin that the defects are due which a reviewer is bound to point out.

The first 82 pages are occupied by generalities such as the laws of production of heat in the circuit, the efficiency of dynamos, electric and photometric measurements. Then come 60 pages upon arrangements of leading wires and of lamps in installations for electric light, including the so-called "secondary generators" or induction coils for distributing alternating currents. At p. 140 we at last reach arc lamps, the principal types of which are described with care. Twelve pages are allotted to the now almost obsolete electric "candle," and at p. 263 we enter upon the glow lamps. These are described all too briefly, especially so far as relates to the details of manufacture; but the data as to tests of efficiency and durability of the lamps are most satisfactorily summarised. This chapter includes an abstract of the tests made by the Philadelphia Committee, whose method of testing the lamps and of deducing the "mean spherical intensity" of the illumination is perhaps more scientific than that of any of the numerous Exhibition committees who have reported on electric lamps. The book concludes with special chapters on the application of electric light to lighthouses, ships, mines, railway trains, photography, and operative surgery.

There are several contradictory statements in Dr. Maier's book. On p. 270 he tells us that after the inventions of Greener and Staite in 1846 electric lighting fell

completely into oblivion till 1873, when Lodyguine took up the question. Yet on p. 148 we find a description of improvements made in 1857 by Lacassagne and Thiers, and on p. 362 we find that electric light has been used for stage purposes ever since the production of Meyerbeer's opera of "Le Prophète" in 1846. The records of the English Patent Office between 1846 and 1873 show abundant evidence to negative Dr. Maier's statement. In that interval came the invention of the lamps of Serrin, Chapman, Way, and Browning, and the successive improvements of Holmes, Siemens, the Varleys, Wheatstone, Wilde, and Gramme in the magneto- and dynamo-electric generators for lighting purposes. On p. 32 it is stated that the drawback of the system of arranging lamps in series in one circuit lies in the fact that the individual lamps are not independent of one another; yet on p. 94 and p. 184 it appears that there are means by which any lamp is made quite independent of all the other lamps in the series.

We object entirely to Dr. Maier's classification of arc lamps into "monophotal" and "polyphotal"; these high-sounding names being respectively applied by him to lamps that will not work, and those that will work, when more than one is placed in series in the same circuit. The distinction is entirely misleading: for the question whether one or many lamps can be worked together depends quite as much on the dynamo as on the lamps. Every one knows that modern dynamos are so designed as to work under one of two standard conditions: they must either yield a constant current in the line, or else must maintain a constant difference of potential between the distributing mains. As a rule arc lamps arranged to work in series in a constant-current circuit will not work if set in parallel across the mains of a constant-potential network, and *vice versa*. The true classification of lamps should therefore be into constant-current lamps which will work many in series, and constant-potential lamps which will work many in parallel. Probably the only lamp that will not fall in one of these two categories is the old regulator of Duboscq and Foucault. Most of the lamps classified by Dr. Maier as monophotal, and which according to him can only be worked each with its own separate dynamo, will work perfectly well in parallel with one another on a constant-potential system of mains. One consequence of Dr. Maier's curious classification is that when he comes to the Gülcher lamp, which is an excellent lamp for lighting in parallel, he cannot put it under either head, and it is relegated to miscellaneous lamps. Of the lamps which he describes as polyphotal, the very first is Lontin's modification of the Serrin lamp; but curiously enough the lamp figured and described in the text is *not* Lontin's but is the old unmodified Serrin, which, though stated by Dr. Maier to be monophotal, is really exactly in the same category as Gülcher's lamp. The lamp of Street and Maquaire is stated to be different from all other arc lamps in employing a vibratory principle: the author appears not to know that the lamps of Clark-Bowman, Newton, and Pieper also have vibrating mechanism. Amongst other erroneous points it is stated on p. 321 that Edison was the first to point out the advantage of high electromotive force in the glow lamp; on p. 324 that the Lane-Fox pump gives "infinitely better results" than the Sprengel or Geissler pumps; on p. 305